



## **Chesterfield County, Virginia**

### **Utilities Department**

9840 Government Center Parkway – P.O. Box 608 – Chesterfield, Va. 23832-0009

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**ROY E. COVINGTON, P.E.**  
**Director**

### **A GUIDE TO SELECTING, INSTALLING AND MAINTAINING BACKFLOW PREVENTION ASSEMBLIES IN IRRIGATION SYSTEMS**

Backflow prevention assemblies on irrigation systems are required by law. These devices must be installed and maintained according to the requirements described below, as a minimum. Failure to do so creates an unprotected, or inadequately protected, cross connection. If a backflow condition were to occur, such as unexpected pressure changes from a water-main break or fire-fighting activities, your drinking water could become contaminated by fertilizers and pesticides that you apply to your lawn. In addition, if a backflow assembly is not installed and maintained properly it could fail prematurely and result in more frequent maintenance and higher costs.

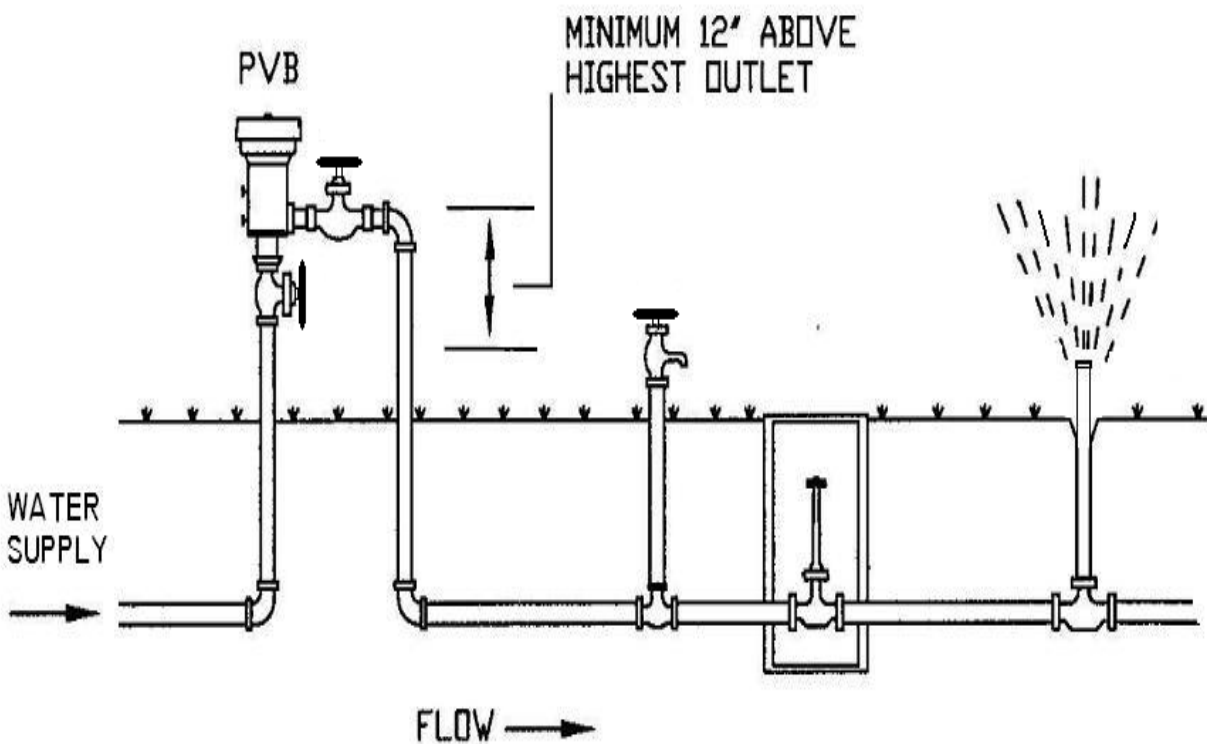
The information below is provided to help guide you in selecting the proper type of backflow prevention assembly for your irrigation system, installing it correctly, and maintaining it adequately. These measures will help protect your investment and the health of you, your family and your community.

There are two types of backflow prevention assemblies that may be installed in lawn irrigation systems in Chesterfield County:

1. The pressure vacuum breaker, or PVB assembly (**see Figure 1**):
  - A. Designed to stop back-siphonage backflow only
  - B. Cannot be used where backpressure may develop in the downstream piping (if your system has downstream zone valves, elevated piping, pumping equipment or an auxiliary source of water, backpressure can develop)
  - C. Protects against health (high) and non-health (low) hazards
  - D. Can be installed and used under continuous supply pressure
  - E. Cannot be located in below-grade vaults or pits
  - F. Must be provided with ample atmosphere in order to operate properly
  - G. Cannot be wrapped with insulation
  - H. Must be installed upright (air inlet canopy at top)
  - I. Must be accessible for testing and maintenance
  - J. Must be protected from freezing (consider installing a freeze-resistant model produced by some manufacturers, or consider installing an approved insulated enclosure over the assembly)

- K. Must be installed a minimum of 12 inches above the highest downstream outlet (such as a sprinkler head when fully extended), measured from the outlet pipe of the assembly to the highest point of the highest downstream outlet
- L. Installed downstream of the water meter or separately connected to your home's plumbing system
- M. Must be tested upon installation, after repair, when relocated, and annually as a minimum
- N. Must be overhauled or replaced if tests reveal the check valve closes at less than 1.0 psi (pounds per square inch) on the test gauge
- O. Should be overhauled (replacement of internal parts as a minimum) every five years

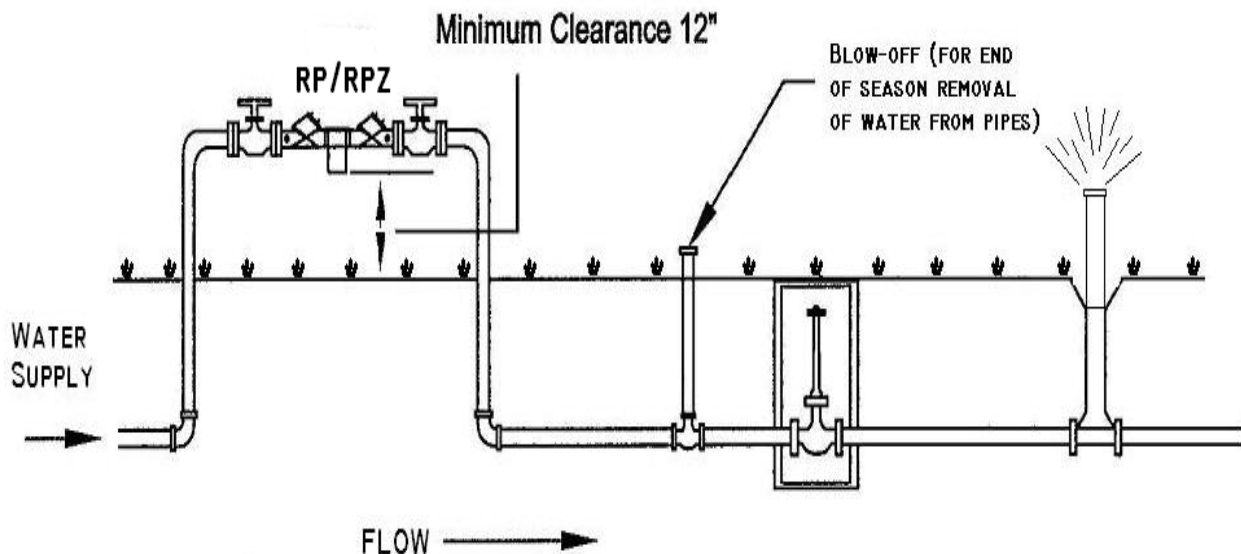
**FIGURE 1**  
**PVB BACKFLOW PREVENTION ASSEMBLY INSTALLATION**



2. The reduced pressure principal, or RP or reduced pressure zone, or RPZ assembly (see **Figure 2**):

- A. Designed to stop back-siphonage and backpressure backflow
- B. Can be used where back-pressure can develop in downstream piping
- C. Protects against health (high) and non-health (low) hazards
- D. Can be installed and used under continuous supply pressure
- E. Cannot be located in below-grade vaults or pits
- F. Cannot be wrapped with insulation
- G. Must be installed horizontally
- H. Must be accessible for testing and maintenance
- I. Must be protected from freezing
- J. Must be installed a minimum of 12 inches above grade, measured from grade (surface level) to the lowest point on the body of the assembly
- K. Must be installed where water spillage will be objectionable or a nuisance
- L. Must be installed downstream of the water meter or separately connected to your home's plumbing system
- M. Must be installed where water spillage will not be objectionable or a nuisance
- N. Must be tested upon installation, after repair, when relocated, and annually as a minimum
- O. Must be overhauled or replaced if tests reveal the check valves will not hold tight or the relief valve opens at less than 2.0 psi on the test gauge
- P. Should be overhauled (replacement of internal rubber parts as a minimum) every five years

**FIGURE 2**  
**RP/RPZ BACKFLOW PREVENTION ASSEMBLY INSTALLATION**



### Installation and Maintenance Notes

1. The installation of new backflow prevention assemblies requires an auxiliary plumbing permit issued by the Chesterfield County Building Inspections Department, Community Development Building, 9800 Government Center Parkway. The permit may be obtained by the homeowner or the contractor. No matter who obtains the permit, the backflow prevention assembly shall be installed according to applicable building codes.
2. A companion water meter is available from the Chesterfield County Department of Utilities. The companion meter allows you to irrigate without having to pay sewer charges for the water used only for irrigation. For more information call 748-1862 or visit our website at [www.chesterfield.gov/utilities](http://www.chesterfield.gov/utilities).
3. You, or your contractor, are responsible for connecting your irrigation system to the water service to or within your home. If connected to the water service, the attachment must be made downstream of (after) the water meter. Materials and construction must comply with Virginia building codes and the Chesterfield County Department of Utilities' Water and Sewer Specifications and Procedures.
4. The water supply pipe to the backflow prevention assembly (between the meter and the assembly) must be installed 24 inches deep.
5. A "blow-off" (a pipe connected to the irrigation system, extending above ground, and used for pumping pressurized air into the pipes to remove water to prevent freezing during winter) is not allowed upstream (before) the backflow prevention assembly. The "blow-off," if any, must be installed after the backflow prevention assembly.
6. The backflow prevention assembly must be inspected and tested annually as a minimum at or within 30 days of seasonal start-up of your irrigation system. This must be done to determine that it's use and installation has not been circumvented or changed, that it has not been damaged, and will operate properly..
7. Individuals who perform tests on backflow prevention assemblies must hold a valid Tradesman Certificate as a Backflow Prevention Device Worker issued by the Virginia Department of Professional and Occupational Regulation. Testers may be found in the yellow pages of your local telephone book under Plumbing Contractors, or by conducting searches on the Internet.
8. Test results must be recorded on an approved Backflow Prevention Assembly Test Report form. The report must be signed by the tester.
9. It is recommended that you maintain a copy of the test report for your records.

10. A copy of the test report must be submitted to the following address or fax number:

Chesterfield County Department of Utilities  
Cross-Connection Control Coordinator  
P.O. Box 608  
Chesterfield, VA 23832-0009  
Fax (804) 751-4437

11. All reports, originals or faxed copies, must be legible. Reports that are difficult to read will not be accepted.
12. The manufacturer's name, model number, serial number, size and the results of all tests will be maintained by the Utilities Department.
13. The Utilities Department will notify you at least 30 days in advance of the date that the next annual test is due.
14. It is recommended by the manufacturer that the backflow prevention assembly be overhauled (replacement of internal rubber components, as a minimum) every five years.

If you have any questions, please call the Cross-Connection Info Line at (804) 748-1280, or the cross connection control coordinator at (804) 748-1356.

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